Objective

• To improve scientific understanding of volcanic effects on climate during the late 20th and early 21st centuries

Research

• To determine whether multi-variable signals of recent volcanic activity are identifiable in satellite observations
• To estimate the percentage of the temporal variance of observational temperature, moisture, and radiation data explained by volcanically-caused changes in stratospheric aerosol optical depth (SAOD)

Impact

• Signals of late 20th and early 21st century volcanic activity are statistically discernible in spatial averages of tropical and near-global SST, tropospheric temperature, net clear-sky short-wave radiation, and atmospheric water vapor
• Signals of late 20th and early 21st century volcanic eruptions are also detectable in near-global averages of rainfall
• During the post 2005 period, up to 30% of the temporal variance of near-global SST is explained by SAOD
• The largest post-Pinatubo cooling signals are preferentially distributed in the final third of the recent “warming hiatus” period, and must therefore contribute to the hiatus